WATER SUPPLY OUTLOOK FOR NEVADA

and

FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

UNITED STATES DEPARTMENT of AGRICULTURE···SOIL CONSERVATION SERVICE,

and

NEVADA DEPARTMENT of CONSERVATION and NATURAL RESOURCES
DIVISION of WATER RESOURCES

Data included in this report were obtained by the agencies named above in cooperation with Federal, State and private organizations listed on the last page of this report.

AS OF
JAN. 1, 1967

TO RECIPIENTS OF WATER SUPPLY OUTLOOK REPORTS:

Most of the usable water in western states originates as mountain snowfall. This snowfall accumulates during the winter and spring, several months before the snow melts and appears as streamflow. Since the runoff from precipitation as snow is delayed, estimates of snowmelt runoff can be made well in advance of its occurrence. Streamflow forecasts published in this report are based principally on measurement of the water equivalent of the mountain snowpack.

Forecasts become more accurate as more of the data affecting runoff are measured. All forecasts assume that climatic factors during the remainder of the snow accumulation and melt season as they affect runoff will add to be an effective average. Early season forecasts are therefore subject to a greater change than those made on later dates.

The snow course measurement is obtained by sampling snow depth and water equivalent at surveyed and marked locations in mountain areas. A total of about ten samples are taken at each location. The average of these are reported as snow depth and water equivalent. These measurements are repeated in the same location near the same dates each year.

Snow surveys are made monthly or semi-monthly from January 1 through June 1 in most states. There are about 1400 snow courses in Western United States and in the Columbia Basin in British Columbia. In the near future, it is anticipated that automatic snow water equivalent sensing devices along with radio telemetry will provide a continuous record of snow water equivalent at key locations.

Detailed data on snow course and soil moisture measurements are presented in state and local reports. Other data or reservoir storage, summaries of precipitation, current streamflow, and soil moisture conditions at valley elevations are also included. The report for Western United States presents a broad picture of water supply outlook conditions, including selected streamflow forecasts, summary of snow accumulation to date, and storage in larger reservoirs.

Snow survey and soil moisture data for the period of record are published by the Soil Conservation Service by states about every five years. Data for the current year is summarized in a West-wide basic data summary and published about October 1 of each year.

Listed below are water supply outlook reports based on Federal-State-Private Cooperative snow surveys. Those published by the Soil Conservation Service may be obtained from Soil Conservation Service, Room 507, Federal Building, 701 N. W. Glisan, Portland, Oregon 97209.

PUBLISHED BY SOIL CONSERVATION SERVICE

D. A. WILLIAMS, Administrator

The Soil Conservation Service publishes reports following the principal snow survey dates from January 1 through June 1 in cooperation with state water administrators, agricultural experiment stations and others. Copies of the reports for Western United States and all state reports may be obtained from Soil Conservation Service, Western Regional Technical Service Center, Room 507, 701 N. W. Glisan, Portland, Oregon 97209.

Copies of state and local reports may also be obtained from state offices of the Soil Conservation Service in the following states:

STATE	ADDRESS
Alaska	P. O. Box "F", Palmer, Alaska 99645
Arizona	6029 Federal Building, Phoenix, Arizona 85205
Colorado (N. Mex.)	12417 Federal Building, Denver, Colorado 80202
Idaho	P. O. Box 38, Boise, Idaho 83701
Montana	P. O. Box 855, Bozeman, Montana 59715
Nevada	P. O. Box 4850, Reno Nevada 89505
Oregon	1218 S. W. Washington St., Portland, Oregon 97205
Utah	4001 Federal Building, Salt Lake City, Utah 84111
Washington	840 Bon Marche Bldg., Spokane, Washington 99206
Wyoming	P. O. Box 340, Casper, Wyoming 82602

PUBLISHED BY OTHER AGENCIES

Water Supply Outlook reports prepared by other agencies include a report for California by the Water Supply Forecast and Snow Surveys Unit, California Department of Water Resources, P. O. Box 388, Sacramento, California 95802 --- and for British Columbia by the Department of Lands, Forests and Water Resources, Water Resources Service, Parliament Building, Victoria, British Columbia

WATER SUPPLY OUTLOOK
for
NEVADA

and

FEDERAL - STATE - PRIVATE COOPERATIVE SNOW SURVEYS

Report Issued by

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STATE CONSERVATIONIST
SOIL CONSERVATION SERVICE
RENO, NEVADA

ELMO J. DE RICCO

DIRECTOR
DEPARTMENT OF CONSERVATION AND
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CARSON CITY, NEVADA

JANUARY 8, 1967

Prepared by

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SOIL CONSERVATION SERVICE
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INDEX TO NEVADA SNOW COURSES

(By Basins)

NUMBER	NAME	SEC.	TWP.	RGE.	ELEV.
	SNAKE RIVER BASIN				
	SNAKE RIVER				
15H1MA	BEAR CREEK	31	46N	58E	7800
15H2	FOX CREEK	33	46N	58E	6800
15H13	GOAT CREEK	31	46N	60E	8800
15H15A	HUMMINGBIRO SPRINGS	6	45N	60E	B945
14H1	JAKES CREEK	6	42N	62E	7000
15H20a	MERRITT MOUNTAIN	10	46N	54E	7000
15H14	POLE CREEK RANGER STATION	13	46N	59E	8330
15H18a	RED POINT	15	47N	61E	7940
15H3A	76 CREEK	6	44N	58E	7100
15H19a	STAG MTN.	29	41N	58E	7800
	OWYHEE RIVER				
15H4MP	BIG BENO	30	45N	56E	6700
16H6a	COLUMBIA BASIN	31	44N	53E	6650
16H8a	FAWN CREEK	2	45N	52E	7000
15H5	GOLO CREEK	32	45N	56E	6600
16H1M	JACK CREEK, LOWER	18	42N	53E	6800
16H2A	JACK CREEK, UPPER	9	42N	53E	7250
16H4	JACKS PEAK	28	42N	53E	8420
16H5	LAUREL ORAW	20	45N	53E	6700
17G4a	LOUSE CANYON (OREG.)	27	40S	44E	6440
15H9MP	TAYLOR CANYON	35	39N	53E	6200
	INTERIOR				
	UPPER HUMBOLOT RIVER				
15J17a	AMERICAN BEAUTY	32	31N	58E	7800
16H6a	COLUMBIA BASIN	31	44N	53E	6650
15J12A	CORRAL CANYON	27	28N	57E	8500
15J1MP	DORSEY BASIN	28	35N	60E	8100
15J3	DRY CREEK	5	34N	60E	6500
15H7	FRY CANYON	31	43N	54E	6700
15J9MP	GREEN MOUNTAIN	23	29N	57E	8000
15J10	HARRISON PASS #1	9	28N	57E	6600
15J11	HARRISON PASS #2	16	28N	57E	7400
15J4	LAMOILLE #1	15	32N	58E	7100
15J5	LAMOILLE #2	14	32N	58E	7300
15J6M	LAMOILLE #3	24	32N	58E	7700
15J7	LAMOILLE #4	19	32N	59E	8000
15J8P	LAMOILLE #5	31	32N	59E	8700
15J18a	POLE CANYON	31	35N	61E	9140
15J16a	ROBINSON LAKE	23	33N	59E	9200
15H6MP	RODEO FLAT	36	43N	53E	6800
15J2	RYAN RANCH	1	34N	59E	5800
15H8	TREMEWAN RANCH	9	39N	55E	5700
15H10P	TROUT CREEK, LOWER	28	37N	61E	6900
15H11A	TROUT CREEK, UPPER	4	36N	61E	8500
	LOWER HUMBOLOT RIVER				
17K1	BIG CREEK CAMP GROUND	10	17N	43E	6600
17K2	BIG CREEK MINE	23	17N	43E	7600
17K3	BIG CREEK, UPPER	26	17N	43E	8000
17H2	BUCKSKIN, LOWER	25	45N	39E	6700
17H1	BUCKSKIN, UPPER	11	45N	39E	8200
17J2	GOLCONDA #2	22	35N	39E	6000
17H4	GRANITE PEAK	22	44N	39E	7800
17H5	LAMANCE CREEK	13	42N	38E	6000
17L1	LOWER CORRAL	12	11N	40E	7500
17H3	MARTIN CREEK	18	44N	40E	6700
16H3AP	MIDAS	18	39N	46E	7200
16H7	TOE JAM a	29	40N	50E	7700
17L2	UPPER CORRAL	20	11N	41E	8500
	EASTERN NEVADA				
14L1	BAKER #1	29	13N	69E	7950
14L2	BAKER #2	30	13N	69E	8950
14L3	BAKER #3	25	13N	68E	9250
14K2	BERRY CREEK	23	17N	65E	9100
14K1	BIRD CREEK	34	19N	65E	7500
15J13	CAVE CREEK	25	27N	57E	7500
15J14	HAGER CANYON	34	27N	57E	8000
15J15	HOLE-IN-MTN	6	35N	61E	7900
14K8	KALAMAZOO CREEK	34	20N	65E	7400
14K3	MURRAY SUMMIT	26	16N	62E	7250
15K1	ROBINSON SUMMIT	23	18N	61E	7600
14K7	SILVER CREEK #2	30	16N	69E	8000
14K5	WARD MOUNTAIN #2	25	15N	62E	7875
15L1	WHITE RIVER #1	31	13N	59E	7400
	CENTRAL GREAT BASIN				
18M2	CAMPITO MTN (CAL.)	19	5S	35E	10200
18M5a	CHICTOVICH FLAT	32	2S	34E	10500
15N2	CLARK CANYON	8	19S	56E	9000
18M1	MONTGOMERY PASS	4	1N	33E	7100
18M3a	PINCHOT CREEK	28	1N	33E	9300
18M4a	PIUTE PASS (CAL.)	33	4S	33E	11700
15N1	TROUGH SPRINGS	23	18S	55E	8500
	NORTHERN GREAT BASIN				
19H1	BALD MOUNTAIN	17	45N	21E	6720
20H5	BARBER CREEK (CAL.)	23	39N	16E	6500
20H6	CEDAR PASS (CAL.)	12	43N	14E	7100
18G6a	DENIO CREEK (OREG.)	14	41S	34E	6000
18H1	DISASTER PEAK	8	47N	34E	6500
20H3a	DISMAL SWAMP (CAL.)	31	48N	22E	7000
20H7	EAGLE PEAK (CAL.)	35	40N	15E	7200
19H3	49-MTN	7	42N	19E	6000
19H2	HAYS CANYON	1	39N	18E	6400
19H4a	LITTLE BALLY MTN	8	45N	19E	6000
17G5a	OREGON CANYON (OREG.)	9	40S	40E	7240
17H6a	QUINN RIDGE	9	47N	41E	6300
20H4	RESERVATION CREEK (CAL.)	12	46N	15E	5900
18G5a	TROUT CREEK (OREG.)	10	41S	38E	7800

NUMBER	NAME	SEC.	TWP.	RGE.	ELEV.
	LAKE TAHOE				
19L14	DAGGETTS PASS	19	13N	19E	7350
20L5	ECHO SUMMIT (CAL.)	6	11N	18E	7450
19L2	FREEL BENCH (CAL.)	36	12N	18E	7300
19K6	GLENBROOK #2	13	14N	18E	6900
19L3M	HAGANS MEADOW (CAL.)	36	12N	18E	8000
20L4	LAKE LUCILLE (CAL.)	28	12N	17E	8200
19K4M	MARLETTE LAKE	18	15N	19E	8000
20L3	RICHARDSONS #2 (CAL.)	6	12N	18E	6500
20L1	RUBICON #1 (CAL.)	6	13N	17E	8100
20L2	RUBICON #2 (CAL.)	6	13N	17E	7500
20K16	TAHOE CITY (CAL.)	6	15N	17E	6250
19L1	UPPER TRUCKEE (CAL.)	21	12N	18E	6400
20K17M	WARD CREEK (CAL.)	21	15N	16E	7000
	TRUCKEE RIVER				
20K14	BOCA #2 (CAL.)	28	18N	17E	5900
20K22	BROCKWAY SUMMIT (CAL.)	3	17N	16E	7100
20K21	DONNER PARK #2 (CAL.)	18	17N	16E	6000
20K10*	DONNER SUMMIT (CAL.)	25	17N	14E	6900
20K7*	FORDYCE LAKE (CAL.)	34	18N	13E	6500
20KB	FURNACE FLAT (CAL.)	10	17N	13E	6700
20K4MP	INDEPENDENCE CAMP (CAL.)	34	19N	15E	7000
20K3	INDEPENDENCE CREEK (CAL.)	14	19N	15E	6500
20K5	INDEPENDENCE LAKE (CAL.)	9	18N	15E	8450
19K3	LITTLE VALLEY	17	16N	19E	6300
19K2	MT. ROSE	7	17N	19E	9000
20K6	SAGE HEN CREEK (CAL.)	7	18N	16E	6500
20K19	SQUAW VALLEY #2 (CAL.)	6	15N	16E	7500
20K13M	TRUCKEE #2 (CAL.)	22	17N	16E	6400
20K2	WEBBER LAKE (CAL.)	29	19N	14E	7000
20K1*	WEBBER PEAK (CAL.)	30	19N	14E	8000
	CARSON RIVER				
19L5	BLUE LAKES (CAL.)	30	9N	19E	8000
19L4	CARSON PASS, UPPER (CAL.)	22	10N	18E	8600
19K5	CLEAR CREEK	6	14N	19E	7300
19L19a	EBBETTS PASS (CAL.)	17	8N	20E	8700
19L6A	POISON FLAT (CAL.)	25	8N	21E	7900
19L16a	UPPER FISH VALLEY (CAL.)	18	7N	22E	8050
19L20a	WOLF CREEK (CAL.)	35	8N	20E	8000
19L18a	WET MEADOWS LAKE (CAL.)	26	9N	19E	8100
	WALKER RIVER				
19L11	BUCKEYE FORKS (CAL.)	20	4N	23E	8500
19L10	BUCKEYE ROUGHS (CAL.)	15	4N	23E	7900
19L12A	CENTER MOUNTAIN (CAL.)	4	3N	23E	9400
18L1	LAPON MEADOW	36	8N	28E	9000
19L8	LEAVITT MEADOWS (CAL.)	4	5N	22E	7200
19L17a	LOBDELL LAKE (CAL.)	20	7N	24E	9200
18L2	MT. GRANT	23	8N	28E	9000
19L7M	SONORA PASS (CAL.)	1	5N	21E	8800
19M1*	TIOGA PASS (CAL.)	30	1N	25E	9800
19L13M	VIRGINIA LAKES (CAL.)	5	2N	25E	9500
19L9	WILLOW FLAT (CAL.)	21	5N	23E	8250
	COLORADO				
	LOWER COLORADO RIVER				
15N5	KYLE CANYON	27	19S	56E	8200
15N4	LEE CANYON #1	10	19S	56E	8400
15N3	LEE CANYON #2	9	19S	56E	9200
15N8	LEE CANYON #3	10	19S	56E	8500
14M1	MATHEW CANYON	10	6S	70E	6000
14M2	PINE CANYON	23	6S	69E	6200
15N7	RAINBOW CANYON #2	6	20S	57E	8100

LEGEND

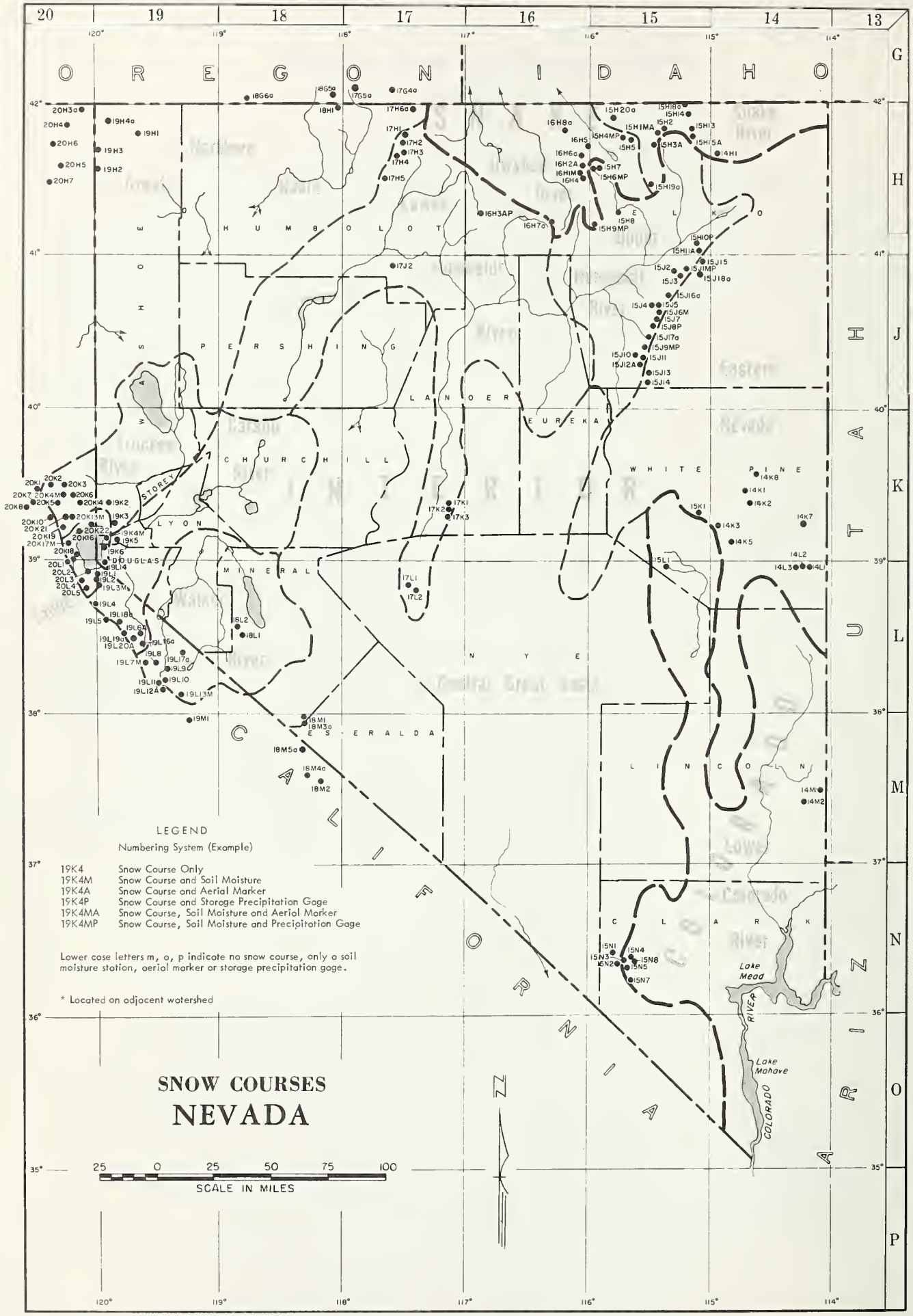
NUMBERING SYSTEM (EXAMPLE)

19K4	SNOW COURSE ONLY
19K4M	SNOW COURSE AND SOIL MOISTURE
19K4A	SNOW COURSE AND AERIAL MARKER
19K4P	SNOW COURSE AND STORAGE PRECIPITATION GAGE
19K4MA	SNOW COURSE, SOIL MOISTURE AND AERIAL MARKER
19K4MP	SNOW COURSE, SOIL MOISTURE AND PRECIPITATION GAGE

LOWER CASE LETTERS m, a, p, INDICATE NO SNOW COURSE, ONLY A SOIL MOISTURE STATION, AERIAL MARKER OR STORAGE PRECIPITATION GAGE.

* LOCATED ON ADJACENT WATERSHED

USDA SCS-PORTLAND, OREG. 1965 M-1824



U S DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE

WATER SUPPLY OUTLOOK FOR NEVADA

January 1, 1967

* *

Nevada's 1967 water supply outlook is "near average" at this early winter date. January 1 snow measurements indicate close to average water content on the Tahoe-Truckee, Owyhee, and Humboldt River Basins, while measurements farther south, on the Carson and Walker River Basins, show slightly above average for this time of year. Watershed soils are well primed to aid spring snow-melt runoff. Reservoir storage is near the fifteen-year average for the 1948-62 period, although well below the last three years on January first.

* *

Storms in late November and early December deposited a good blanket of snow on Northern and Central Nevada and the Sierras. Snow that covered lower elevations in the valleys has since been washed away by rains or melted by fair weather, which followed the early snow storms and persisted throughout most of December.

Limited January 1 snow surveys on the Walker and Carson Basins indicate a snow pack already slightly above the February 1 average water content. Tahoe-Truckee Basin measurements, although not as good as those farther south on the Sierras, are still near average.

The Owyhee and Humboldt Basins show near average snow-water content at higher elevations and slightly above average at lower elevations.

Soil moisture is good over most of the state. Measurements indicate about the same as last year at this time but well below two years ago, which was a very wet fall.

Reservoir storage is near the fifteen-year average, although well below last years good supply. Low streamflow last summer caused a heavier than usual use of reservoir-stored water.

Average snow fall for the remainder of the season, coupled with good soil moisture to aid runoff and near average reservoir storage, points to about an average water supply for most Nevada water users this coming summer.

February 1 snow surveys will cover a wider area, and, by that time, about two-thirds of the seasons total snow water has been deposited, giving a much better indication of the summers water supply outlook.

NEVADA
STATUS OF RESERVOIR STORAGE

January 1, 1966

BASIN AND STREAM	RESERVOIR	USABLE CAPACITY (1000 AF)	USABLE STORAGE - 1000 ACRE FEET 1967	1966	1965	JAN. 1 15-YR. AVE. 1948-62	CHANGE SINCE SEPT. 30 1966
Owyhee	Wild Horse	33	2	16	3*	11	+1
Lower Humboldt	Rye Patch	179	68	179	99	53	-12
Colorado	Mohave	1,810	1,574	1,738	1,588	1,250**	+187
Colorado	Mead	27,217	15,481	15,233	11,136	17,944	+477
Tahoe	Tahoe	732	364	606	454	362	-42
Truckee	Boca	41	2	2	26	12	0
Truckee	Prosser***	30	8	10	12	Storage began 1/30/63	-1
Carson	Lahontan	286	117	229	161	142	+60
West Walker	Topaz	59	20	48	27	23	+14
East Walker	Bridgeport	42	19	32	19	20	+13

* Reservoir drained during summer 1964 to effect repairs to dam.
** 1950-62
*** Flood control use allocation of 20,000 A.F. between Nov. 1 and Apr. 10.

TOTAL RESERVOIR STORAGE
Developed from Wild Horse, Rye Patch, Tahoe, Boca, Lahontan, Topaz, and Bridgeport Reservoirs in 1000's Acre Feet

MONTH	1961-62	1962-63	1963-64	1964-65	1965-66	1966-67	AVERAGE 1948-62
October 1	68	338	702	500	1144	558	572
January 1	59	408	748	789	1112	592	622
February 1	74	579	776	917	1049		670
March 1	208	690	774	947	1039		725
April 1	316	765	774	1008	1052		776
May 1	502	840	818	1104	1089		834

TOTAL USABLE CAPACITY 1,372

January 1, 1967

NEVADA SNOW SURVEYS

Drainage Basin and Snow Course	Elev.	SNOW COVER MEASUREMENTS 1967 Date of Survey	Snow Depth (Inches)	Water Content (Inches)	Past Record Water Content 1966	1965	15-Yr. 1948-62 Average Jan. 1	Apr. 1
SNAKE RIVER								
Bear Creek	7800	-	b	-	4.6a	8.8a	7.3*	21.0
Goat Creek	8800	-	b	-	3.5a	7.8a	6.6*	19.5*
Hummingbird Springs	8945	-	b	-	6.1a	15.2a	6.8*	23.0*
Pole Creek	8330	12/31	38	9.9	4.4	11.0	6.5*	20.2*
Red Point	7940	-	b	-	1.8a	5.8a	-	-
OWYHEE RIVER								
Big Bend	6700	12/29	17	2.7	1.7	4.5	3.5*	10.7
Gold Creek	6600	12/29	13	2.2	0.2	2.1	2.2*	6.5
Taylor Canyon	6200	12/28	17	3.1	2.3	1.1	1.8*	3.7
HUMBOLDT RIVER								
Fry Canyon	6700	12/29	17	3.3	2.5	2.5	3.1*	8.9
Rodeo Flat	6800	12/29	12	2.4	2.4	1.9	3.4*	8.2
Tremewan Ranch	5700	12/28	8	1.0	1.9	T	0.4*	0.7
LAKE TAHOE-TRUCKEE RIVER								
Freel Bench	7300	12/28	16	5.2	7.1	9.2	-	12.1
Glenbrook #2	6900	12/31	18	4.6	-	-	-	13.0
Hagans Meadow	8000	12/28	28	9.1	9.8	13.3	-	18.6
Independence Camp	7000	12/30	30	9.0	-	-	-	24.4
Richardsons #2	6500	12/31	23	6.2	10.9	-	-	17.9
Tahoe City	6250	12/29	14	4.5	8.4	-	-	10.8
Upper Truckee	6400	12/28	12	3.8	6.6	5.1	-	8.4
Ward Creek	7000	12/29	53	18.8	-	-	-	47.2
CARSON-WALKER RIVERS								
Sonora Pass	8800	12/27	45	13.9	14.0	15.0	-	23.5
Virginia Lakes	9500	12/27	39	12.3	9.8	10.9	-	17.5

* Adjusted 15-year average.
a Aerial snow depth gage reading; water content estimated.
b Aerial marker flight delayed due to snow storms

NEVADA SOIL MOISTURE
January 1, 1967

STATION Name	Elevation	PROFILE (Inches) Depth	Capacity	SOIL MOISTURE (Inches) Date	This Year	Summer 1966	Last Year	2 Years Ago
Big Bend	6700	48	16.7	12/29	15.5	15.0	14.6	16.2
Rodeo Flat	6800	42	11.0	12/29	9.1	6.8	10.6	11.0
Taylor Canyon	6200	48	15.1	1/3	11.6	10.9	12.4	15.0

Agencies Cooperating in Collecting Data Contained in this Bulletin

FEDERAL

- Agricultural Research Service
- Army
- Bureau of Reclamation
- Fish and Wildlife Service
- Forest Service
- Geological Survey
- Navy
- Soil Conservation Service
- U.S. District Court - Federal Water Master
- Weather Bureau

STATE

- California Cooperative Snow Surveys
- California Department of Parks and Recreation
- California Department of Water Resources
- Colorado River Commission of Nevada
- Nevada Association of Soil Conservation Districts
- Nevada Cooperative Snow Surveys
- Nevada Department of Conservation & Natural Resources
  - Division of Water Resources
  - Nevada State Forester-Firewarden
- Oregon Cooperative Snow Surveys
- University of Nevada
- White Mountain Research Station, Univ. of California

PRIVATE

- Amalgamated Sugar Company
- Kennecott Copper Corporation
- Nevada Irrigation District
- Owyhee Project North Board of Control
- Owyhee Project South Board of Control
- Pacific Gas & Electric Company
- Pershing County Water Conservation District
- Sierra Pacific Power Company
- Squaw Valley Development Company
- Truckee-Carson Irrigation District
- Virginia City Water Company
- Walker River Irrigation District
- Washoe County Water Conservation District

Other organizations and individuals furnish valuable information for the snow survey reports. Their Cooperation is gratefully acknowledged.

UNITED STATES DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
P.O. Box 4850
Reno, Nevada 89505
OFFICIAL BUSINESS

FEDERAL - STATE - PRIVATE

COOPERATIVE SNOW SURVEYS

Furnishes the basic data necessary for forecasting water supply for irrigation, domestic and municipal water supply, hydro-electric power generation , navigation , mining and industry

"The Conservation of Water begins with the Snow Survey"